



Michael S. Pabian
Counsel

May 26, 1998

Magalie Roman Salas, Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: State Forward-Looking Cost Studies for Federal
Universal Service Support, CC Docket Nos. 96-45, 97-160

Dear Ms. Salas:

In compliance with the Common Carrier Bureau's Public Notice in this matter¹ and by order of the Michigan State Public Service Commission ("MPSC") in its case No. U-11635, a copy of which is attached, Ameritech Michigan makes this filing, on behalf of the Michigan Public Service Commission, of the forward-looking economic cost study authorized by the MPSC for use in the State of Michigan in connection with the Federal Communications Commission's ("FCC's") and any Michigan state universal service support mechanism for Ameritech high cost areas. Attached hereto is the public version of that filing with certain confidential information redacted. A complete filing including all confidential information is being submitted separately with a request for confidential treatment.

Sincerely,

A handwritten signature in cursive script that reads "Michael S. Pabian".

[MSP0136MI.doc]

¹ *In the Matter of State Forward-Looking Cost Studies for Federal Universal Service Report*, CC Docket Nos. 96-45 and 97-160, Public Notice, DA 98-217 (released February 27, 1998).

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of)	
AMERITECH MICHIGAN for approval of its)	
forward-looking economic cost study for use)	Case No. U-11635
in determining federal universal service support.)	
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At the May 11, 1998 meeting of the Michigan Public Service Commission in Lansing,
Michigan.

PRESENT: Hon. John G. Strand, Chairman
Hon. John C. Shea, Commissioner
Hon. David A. Svanda, Commissioner

OPINION AND ORDER

I.

HISTORY OF PROCEEDINGS

The Federal Communications Commission (FCC) issued an order dated May 7, 1997, In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45 (Universal Service Order). In that order, and the rules adopted by it,¹ the FCC identified the services and functionalities to be supported by universal service support mechanisms. The FCC also determined that "high cost" would be determined by the amount a provider's cost exceeds a nationwide benchmark. Those carriers having high costs under the FCC definition could be eligible for cost support. Costs for nonrural carriers, such as Ameritech Michigan, would be determined utilizing forward-looking

¹47 C.F.R. Section 54.101.

economic principles as determined by either a yet-to-be-adopted FCC cost model or pursuant to cost studies approved by state commissions.

On July 14, 1997, the Commission issued an order in Case No. U-11280, which, among other things, approved a cost methodology for Ameritech Michigan to determine its total service long run incremental costs (TSLRIC). Ameritech Michigan was directed to file TSLRIC and related studies and tariffs 14 days thereafter.

On August 13, 1997, the Commission, consistent with FCC deadlines, advised the FCC that it would utilize the TSLRIC standard legislatively mandated in Michigan, MCL 484.2102(ff); MSA 22.1469(102)(ff), for determining universal service costs. On November 3, 1997, Ameritech Michigan filed an application for approval of a forward-looking economic cost (FLEC) study in Case No. U-11573.

In response to petitions for rehearing filed by Ameritech Michigan and other parties, the Commission modified its July 14, 1997 order in Case No. U-11280 on January 28, 1998. That order addressed four items related to Ameritech Michigan's TSLRIC studies: cost of capital, depreciation lives, fill factors, and shared and common cost allocations. The Commission left unchanged its July 14, 1997 rulings related to cost of capital, fill factors, and shared and common cost for unbundled network elements. The Commission adopted Ameritech Michigan's proposals related to depreciation lives.

Also on January 28, 1998, the Commission dismissed Ameritech Michigan's application in Case No. U-11573. It ordered the company to file a new study in a new docket that would be used for federal universal service support for high cost areas and to complete the Commission's comprehensive review of Ameritech Michigan's TSLRICs. Ameritech Michigan's filing in this docket is in response to that order. Today's order is consistent with the schedule established by that order and

will permit Ameritech Michigan to timely file its FLEC study by May 26, 1998, the date established by the FCC.²

Attorney General Frank J. Kelley (Attorney General), the Commission Staff (Staff), AT&T Communications of Michigan, Inc. (AT&T), and MCI Telecommunications Corporation (MCI) filed comments on Ameritech Michigan's filing on March 11, 1998. AT&T, the Staff, and Ameritech Michigan filed reply comments by March 26, 1998. Ameritech Michigan, AT&T, MCI, the Attorney General, and the Staff filed additional responses on April 6, 1998.

This order addresses the issues of Ameritech Michigan's retail shared and common cost study and the geographic disaggregation of the TSLRIC study approved by this Commission in Case No. U-11280 on July 14, 1997 and January 28, 1998.

II.

FCC CRITERIA FOR COMPUTING FLEC

In the Universal Service Order, the FCC specified the following ten criteria that any cost methodology used to calculate the FLEC of providing universal service must satisfy:

- (1) Assume the use of forward-looking technologies for supported services, i.e., least-cost, most-efficient, and reasonable technologies that are currently being deployed, based on characteristics of incumbent local exchange companies (ILECs) wire centers such as the location of switches, line counts, and actual average loop lengths.
- (2) Any network function or element such as loop, switching, transport, and signaling used to provide a supported service must have an associated cost.

²April 23, 1997 Order, CC Docket 96-45. The Commission is not aware of the FCC's having selected a default cost methodology for determining FLECs. However, any determination by the FCC would appear to impact only the filing date for the Ameritech Michigan study, not the methodology used in Michigan.

- (3) Only long-run forward-looking economic costs may be included, using a sufficiently long-run period that all costs may be treated as variable or avoidable. The studies must rely on the current purchase prices of plant and equipment.
- (4) Use of the authorized federal rate of return on interstate services of 11.25% or the state's prescribed rate of return on intrastate services.
- (5) Economic lives and future net salvage percentages used to calculate depreciation expenses must be within the FCC authorized ranges.
- (6) The cost study or model for supported services must reflect the level of services demanded by all customers within a geographic region.
- (7) A reasonable allocation of joint and common costs must be assigned to supported services.
- (8) Cost studies and all underlying data, formulae, computations, and software must be available to all interested parties for review and comment. Inputs should be verifiable, engineering assumptions should be reasonable, and outputs should be plausible.
- (9) Cost studies or models must include the capability to examine and modify critical assumptions and engineering principles such as the cost of capital, depreciation rates, fill factors, input costs, overhead adjustments, retail costs, structure sharing percentages, fiber-copper cross-over points, and terrain factors.
- (10) Cost studies must deaverage support calculations to the wire center serving area level.³

Consistent with the records upon which this case is based and subject to the modifications to Ameritech Michigan's studies delineated in this order, the Commission finds that the studies approved today, in concert with those approved in Case No. U-11280, satisfy the FCC's FLEC criteria, with the exception of criteria 5. The Commission notes that these studies are approved for the purpose of satisfying the geographic disaggregation of Ameritech Michigan's network for the purpose of universal service support mechanisms for high cost areas.

³May 7, 1997 order, CC Docket No. 96-45, paragraph 250.

Approval of these FLEC studies is not intended to overturn, modify, or in any way reconsider issues previously determined in Case No. U-11280 or the parts of this order related to the allocation of shared and common costs. Further, the FLEC study is not intended in any way to be an update to the previously approved study methodology or inputs from Case No. U-11280.

With respect to criteria 5, Ameritech Michigan acknowledges,⁴ and the parties appear to concur, that the depreciation lives and net salvage values are not within FCC authorized ranges. By issuing this order approving Ameritech Michigan's FLEC studies, the Commission is neither explicitly nor implicitly seeking a waiver of the requirement of criteria 5 on behalf of Ameritech Michigan. Because the Commission approved Ameritech Michigan's proposal on depreciation issues in Case No. U-11280, the burden of convincing the FCC on this matter lies squarely with Ameritech Michigan.

III.

COST METHODOLOGY ISSUES

As established in its order commencing this proceeding, the Commission identified two areas to be addressed. The first was Ameritech Michigan's retail shared and common cost study. The second was the geographic disaggregation of the Case No. U-11280 cost study to produce a wire center by wire center cost analysis for use in the FCC universal service support mechanism for high cost areas. In the area of geographic disaggregation, the parties and the Commission have identified eight issues that need to be resolved.

⁴Reply Comments of Ameritech Michigan, Case No. U-11635, p. 30, footnotes 9 and 10.

Shared and Common Costs

The public accounting firm of Arthur Andersen was retained by Ameritech Michigan in June 1996 to perform a study of shared and common costs for use in Case No. U-11280. Arthur Andersen was again retained by Ameritech Michigan to complete a study of shared and common costs for Ameritech Michigan's retail services. The latter is a part of Ameritech Michigan's presentation of its FLEC study.

On the issue of common costs, the Commission notes that it addressed common costs previously. In its Principle No. 5⁵, the Commission defined common costs⁶ as follows:

[C]ommon overheads are those costs that are common to all services or output of a firm. These costs cannot be readily identified with specific services or group of services. An example would be the president's desk. [Emphasis added.]

The Commission has previously reviewed the issue of common costs for unbundled network elements in Case No. U-11280. Further, in light of its Cost Principle No. 5, the Commission is not convinced by this record that its Cost Principle No. 5 is in error or was incorrectly applied in Case No. U-11280. The Commission therefore determines that the common cost multiples or mark-ups for Ameritech Michigan retail services should be set at the level approved in its July 14, 1997 order in Case No. U-11280.

Shared costs as proposed by Ameritech Michigan continue to be based on budgeted data. Calendar year 1997 budget information is hardly what the Commission envisioned when adopting its forward-looking principles in Cases Nos. U-10620 and U-11103.

⁵September 8, 1994 order, Case No. U-10620, Exhibit A, page 5.

⁶The terms common costs and common overheads are used interchangeably in this order.

The result of a TSLRIC analysis is the "economic" cost of providing a service or function. It is intended to identify a forward-looking cost. To reduce a TSLRIC study to an analysis of embedded cost or historical accounting costs or results simply perpetuates the use of a business-as-usual approach to cost analysis. The objective of a TSLRIC study is to reflect the most efficient means of providing a service or function within the parameters previously outlined by the Commission.⁷

Because Ameritech Michigan's retail shared cost study suffers from the same flaws as its study in Case No. U-11280, the Commission must determine a level of shared costs that, at this time, would reasonably reflect the Commission's TSLRIC principles.

The parties commenting on this issue present several "discounts" or reductions to Ameritech Michigan's proposal. Ameritech Michigan responds that any reduction in its proposed costs would have the company experience a drastic underrecovery of its costs.

The Commission concludes that a 20% reduction in Ameritech Michigan's shared costs would result in a reasonable representation of Ameritech Michigan's shared costs. This reduction is consistent with the percentage reduction in similar Michigan Exchange Carriers Association cost studies that were also based on budget data. The 20% is an approximation of increased efficiencies of Ameritech Michigan's operations as required by the TSLRIC concepts of optimum and efficient operation.

Geographic Disaggregation of Costs

The purpose of this phase of the proceeding is simply to disaggregate the TSLRIC study approved in Case No. U-11280 to produce results that could be used by the FCC in the administra-

⁷September 8, 1994 order, Case No. U-10620; FCC FLEC Criteria 3, paragraph 250, CC Docket 96-45.

tion of the universal service support mechanism for high cost areas. In addressing the issues related to the disaggregation, the Commission will not consider proposals that call into question the validity of the results produced in Case No. U-11280. Further, the Commission intends to resolve the matters in dispute in a manner that will permit Ameritech Michigan and this Commission to meet the recently extended FCC deadline of May 26, 1998 for FLEC studies.⁶ With these factors in mind, the Commission rejects all recommendations by commenting parties that the FLEC study be totally recomputed.

The Commission also believes additional justification for rejection of a total restudy is that Ameritech Michigan must use one TSLRIC study for its entire network, e.g., unbundled network elements, retail, and FLEC. At this time, the results of Case No. U-11280 present the best opportunity to achieve that goal. The specific issues in dispute related to disaggregation are:

1. Use of closing factors.
2. Placement of the serving area interface (SAI).
3. Vintage of cable.
4. Use of data from other states or other exchanges.
5. Level of uncollectibles or treatment of uncollectibles.
6. Fill factors.
7. Attorney General items.
 - a. AFAM model's use of "error filtering" system.
 - b. Use of inefficient and embedded technology of UDLIC instead of integrated digital loop carrier.
 - c. Use of highly subjective difficulty factors for cable installation.
 - d. Inclusion of bridge tap cable overstates loop lengths and are not forward-looking.
 - e. Crossover point between copper and fiber may not reflect an efficient forward-looking network confirmation.
 - f. Application of a 15% - 20% reduction of loop costs if above 6 items are not recognized in a revised study.
8. Miscellaneous issues
 - a. Disaggregation should include not only loops but also ports and switching costs.

⁶CC Docket No. 96-45, CC Docket No. 97-160, April 23, 1998.

- b. Some recognition should be given to switching equipment used in switching cost for large metropolitan areas and small rural areas.
- c. Study should include information from or recognize latest vendor contracts rather than the 1992 data utilized by Ameritech Michigan.

Many of these disputed issues have merit in that they provide a level of detail that may have been missing from the study in Case No. U-11280 that was to be disaggregated in this proceeding. The most telling of these issues is the use of closing factors. Absent these factors, Ameritech Michigan could not disaggregate its network in a manner that had the sum of network parts equal the entirety of the network. In effect, Ameritech Michigan has created costs or network synergy where the sum of the network parts exceeds the network as a whole. Closing factors essentially scale down the disaggregated study results to a level equal that in Case No. U-11280. The Commission is concerned with the existence and use of closing factors, but that concern must be tempered with the realization that the FCC's new FLEC study filing deadline provides little time for a comprehensive recalculation of Ameritech Michigan's FLECs. Additionally, the Commission does not intend to revisit its TSLRIC methods approved in Case No. U-11280 prior to the normal biennial review. The Commission therefore concludes, despite the shortcomings, that the use of Ameritech Michigan's closing factors for this case is reasonable and will be permitted. The Commission, however, puts Ameritech Michigan on notice that its future biennial TSLRIC studies must not incorporate closing factors or any similar approach.

Having permitted the use of closing factors in this case, many of the remaining issues may add only false precision to a result that can be deemed reasonable. Therefore, the Commission does not adopt the commenting parties' positions. On the other hand, in its next biennial TSLRIC filing, Ameritech Michigan must justify its proposals as they relate to the placement of the SAIs, use of data from other states, uncollectibles, fill factors (and effective fill factors), and level of disaggrega-

tion in terms of ports and switches and cable vintage, in addition to the normal proofs it would present.

Administrative Issues

The FCC has directed the states to submit FLEC studies. The FCC also established a filing format to be used by all states to simplify and standardize the submission and review of cost studies. The Commission directs Ameritech Michigan to complete the necessary data in the format prescribed by the FCC. The Commission directs Ameritech Michigan to work with the Staff to prepare the data and supporting information. The information should be prepared in a manner that recognizes Michigan statutes and Commission orders. Prior to Ameritech Michigan's filing at the FCC, the Staff is to notify the Commission that, in the Staff's opinion, the FLEC study to be submitted is consistent with Michigan law and Commission action and includes the proper general and supporting information. This notification shall be served on all commenting parties and filed in this docket.

Finally, the Commission also notes that the next biennial TSLRIC filing for Ameritech Michigan is due in January 1999. Until approval of that study, Ameritech Michigan shall utilize the results of Case No. U-11280 and this docket in regulatory matters in Michigan.

The Commission FINDS that:

a. Jurisdiction is pursuant to 1991 PA 179, as amended by 1995 PA 216, MCL 484.2101 et seq.; MSA 22.1469(101) et seq.; the Communications Act of 1934, as amended by the Telecommunications Act of 1996, 47 USC 151 et seq.; 1969 PA 306, as amended, MCL 24.201 et seq.; MSA 3.560(101) et seq.; and the Commission's Rules of Practice and Procedure, as amended, 1992 AACCS, R 460.17101 et seq.

b. Shared and common costs should be recalculated in a manner consistent with this order.

c. The Ameritech Michigan FLEC study should be approved for use in the FCC's universal service support mechanism for high costs areas.

d. Ameritech Michigan and the Staff should prepare the filing for submission to the FCC by May 26, 1998.

e. The Staff should notify the Commission and the commenting parties that the study filing is consistent with Michigan law and Commission orders and includes proper general and supporting information.

f. The next biennial TSLRIC filing for Ameritech Michigan is due in January 1999.

g. Disputed issues related to geographic disaggregation, as discussed in this order, should be addressed and justified by Ameritech Michigan in its January 1999 TSLRIC filing.

THEREFORE, IT IS ORDERED that:

A. Shared and common costs shall be recalculated in a manner consistent with this order.

B. The Ameritech Michigan FLEC study is approved for use in the Federal Communications Commission's universal service support mechanism for high costs areas.

C. Ameritech Michigan and the Commission Staff shall prepare the filing for submission to the Federal Communications Commission by May 26, 1998.

D. The Commission Staff shall notify the Commission and the commenting parties that the study filing is consistent with Michigan law and Commission orders and includes proper general and supporting information.

E. The next biennial total service long run incremental cost filing for Ameritech Michigan is due in January 1999.

F. Disputed issues related to geographic disaggregation, as discussed in this order, should be addressed and justified by Ameritech Michigan in its January 1999 total service long run incremental costs filing.

The Commission reserves jurisdiction and may issue further orders as necessary.

MICHIGAN PUBLIC SERVICE COMMISSION

/s/ John G. Strand
Chairman

(S E A L)

/s/ John C. Shea
Commissioner, concurring and dissenting in a
separate opinion.

/s/ David A. Svanda
Commissioner

By its action of May 11, 1998.

/s/ Dorothy Wideman
Its Executive Secretary

STATE OF MICHIGAN
BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of)	
AMERITECH MICHIGAN for approval)	
of its forward-looking economic cost study)	Case No. U-11635
for use in determining federal universal)	
service support.)	
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CONCURRING AND DISSENTING OPINION OF COMMISSIONER JOHN C. SHEA

(Submitted on May 11, 1998 concerning order issued on same date.)

I concur with the accompanying order to the extent that it completes the task of approving a part of the total service long run incremental cost study of Ameritech Michigan pursuant to Section 304a of the Michigan Telecommunications Act, MCL 484.2304a; MSA 22.1469 (304a).

I dissent from the accompanying order to the extent that it purports to exercise federal authority concerning the federal universal service program.

While the federal universal service program is no doubt a worthy program, the majority, I believe, has erred in issuing the accompanying order for the reason that the Michigan Legislature has seen fit to deny to this Commission the power to implement any universal service program.

By enacting the Michigan Telecommunications Act ("MTA"), the Michigan Legislature expressly limited the Commission in the exercise of its authority. See, MCL 484.2201(2); MSA 22.1469(201)(2) ["In administering this act, the Commission shall be limited to the powers and duties prescribed by this act"]. Elsewhere, the MTA provides that the Commission shall create a task force "to study changes occurring in the federal universal service fund and the need for the

establishment of a state universal service fund," MCL 484.2202(e); MSA 22.1469(202)(e) [emphasis added], and to "issue a report to the legislature and governor on or before December 31, 1996 containing . . . findings and recommendations." Id. The state universal service report has been completed and sent to the Michigan Legislature but, as of this date, no legislative action has been completed that would implement a universal service fund program. Without such statutory authority, this Commission can not act. See, Union Carbide Corp v PSC, 428 NW2d 322, 431 Mich 135 (1988).



John C. Shea, Commissioner

A. GENERAL AND SUPPORTING INFORMATION

1. State

Michigan

2. Date of Filing

May 26, 1998

3. Contact Person and Telephone Number

Milan Holy
(216) 822-7244

4. Hardware Requirements

PC 486 Compatible
Minimum 8M RAM
(Requirements for access to information on Diskettes #1 and #2 described in

5. Software Requirements

Windows 3.1 or 3.11 for Work Groups
EXCEL 7.0
Word 6.0
(Requirements for access to information on Diskettes #1 and #2 described in

6. General Description of Study

State specific study prepared by Ameritech for Ameritech of Michigan.

7. Supporting Information

(a) Please provide supporting information that includes a detailed description of the proposed cost study and all underlying data, formula, computations, and software associated with the study. The documentation should include a complete listing of algorithms and formulas used in the study and in any pre-processing modules. The supporting information should begin with an overview of the basic approach taken in the cost study, including the study's general methodology and basic assumptions. (Note: If the state cost study is a version of a cost model that is already being considered by the Commission as the basis for determining federal high cost support, it is not necessary to provide all underlying documentation; if the proposal contains changes to the algorithms or inputs of a model under consideration by the Commission, however, such changes must be clearly documented.)

Response:

Ameritech Michigan uses a bottoms-up approach that relies upon company specific economic

models of telecommunications facilities, based on current engineering principles and data. Forward-looking investment and annual operating costs are reliably calculated by using the operating and engineering studies and plans used to provide services. To illustrate, Ameritech Michigan utilizes the Ameritech Facilities Analysis Model ("AFAM") to develop loop investments. In using this model, Ameritech Michigan engineers and cost analysts identify the actual location of customers and, based on this data, determine the average lengths of distribution facilities in small geographic areas. Using this data, Ameritech Michigan cost analysts design the least cost, forward-looking distribution network to serve these customers based on the existing location of switching facilities. This bottoms-up design of an efficient network, based on forward-looking engineering practices and effective use of Ameritech Michigan's operations data, is employed throughout Ameritech Michigan's cost study.

To further illustrate, Ameritech Michigan uses the Switching Cost information System ("SCIS") to develop vendor-specific investments of switching equipment. Ameritech's operating experiences and plans indicate that the forward-looking, least cost network for Ameritech relies on purchasing switching equipment from a mix of switch vendors rather than a single source. Also, Ameritech Michigan uses the Economic Cost of Network Services ("ECONS") model to develop unique annual carrying charge factors for each of the three switch vendors from whom Ameritech purchases switching equipment. These factors primarily differ between vendors because of different maintenance expense factors associated with vendor-specific switch designs. Ameritech Michigan's cost study uses both the vendor-specific investments from SCIS and the associated annual carrying charge factors from ECONS to produce vendor-specific annual costs. Then, the cost study weighs these annual costs by using Ameritech Michigan's mix of switches by vendor.

Ameritech Michigan believes its cost study for supported services complies with the cost methodologies established by the Michigan Telecommunications Act (MTA) and the orders of the Michigan Commission in various cost proceedings. The costs in these studies are also consistent with the FCC's terminology used in CC Docket 96-98.

In its September 8, 1994 Order in Case No. U-10620, the Michigan Commission identified the following nine cost principles that characterize a total service long run incremental cost (TSLRIC) study. These cost principles were further interpreted and refined in the December 12, 1996 Order in Case No. U-11103.

- (1) Long run implies a period long enough that all costs are avoidable.
- (2) Cost causation is a key concept in incremental costing.
- (3) The increment being studied should be the entire quantity of the service provided, not some small increase in demand.
- (4) Any function necessary to produce a service must have an associated cost.

- (5) Common overheads are not part of a long run incremental cost study. Recovery of those costs is a pricing issue.
- (6) Technology used in a long run incremental cost study should be the least cost, most efficient technology that is currently available for purchase. This assumes existing location of structural facilities, but allows for replacement with the most efficient, least-cost technology.
- (7) Costs should be forward looking.
- (8) Cost studies, at a minimum, should be performed for the total output of specific services and preferably at the level of basic network functions from which services are derived.
- (9) The same long run incremental cost methodology should apply to all services.

In addition, the Commission recognized that shared costs are to be included in the TSLRIC analysis of a group of services.

These TSLRIC principles of the Commission were codified by the Legislature in the MTA amendments enacted in 1995 PA 216. Section 102(ff) of that legislation also defined the term long run incremental cost.

In 1995 and 1996, the Michigan Commission conducted several proceedings in which it reviewed Ameritech Michigan's TSLRIC studies for various services and unbundled network elements. These proceedings resulted in approval of interim cost studies and establishment of interim rates. In a December 12, 1996 Order, the Commission commenced Case No. U-11280 for the purpose of conducting an overall review of Ameritech Michigan's service costs and rates.

On January 21, 1997, Ameritech Michigan filed TSLRIC cost studies in U-11280. In its filing, Ameritech Michigan explained that the TSLRIC studies were consistent with the TSLRIC standards set forth in the MTA, the Commission's September 8, 1994 Order in U-10620 and December 12, 1996 Order in U-11103.

The Michigan Commission issued an Order in U-11280 in July, 1997. In that order, the Commission approved Ameritech Michigan's cost studies, cost methodologies and proposed rates for unbundled network elements and resale services, as modified by the Commission. On July 24, 1997, Ameritech Michigan filed modified TSLRIC studies consistent with the Commission's order. As result of a subsequent rehearing on certain aspects of that order, the Commission issued a Rehearing Order on September 30, 1997. This order altered some of the cost inputs and TSLRIC results.

The cost study being submitted by Ameritech Michigan for supported services is based on the TSLRIC studies approved by the Commission in U-11280 as filed by Ameritech on February 11, 1998. This cost study uses the cost methodology, as well as most cost models and numbers, approved in U-11280. It also incorporates the modifications ordered by the Michigan Commission in the May 11, 1998 Order in U-11635 which addressed the forward looking economic cost study for use in determining federal universal service support. Copies of the U-11280 and U-11635 orders are included in the diskettes accompanying this filing.

The cost studies submitted in U-11635 incorporated the following four updates from those that were submitted in U-11280.

- 1) AFAM was updated to provide further geographic disaggregation of loop costs;
- 2) Ameritech Michigan has used more current pricing information for loop labor and material;
- 3) Ameritech Michigan has extended the analysis regarding joint and common costs to incorporate retail operating business units; and
- 4) Ameritech Michigan has created an Excel spreadsheet, the Universal Service Accumulator ("USA"), to collect the pertinent cost information and display costs as required by the FCC for the supported services.

The first three updates are tied to specific criteria established in ¶250 of the FCC's Universal Service Order. The last update is an administrative prerequisite to complete this specific cost study.

Regarding the first modification, Ameritech Michigan's cost study for loops is deaveraged to the wire center level to comply with this FCC requirement. By contrast, the corresponding TSLRIC studies were computed at an access area level for three broad, geographic areas, A B and C. While Ameritech Michigan used an inventory of characteristics of the feeder plant, a sampling approach was used for developing costs of the distribution plant. Constructing loop costs for these relatively large areas having large numbers of loops lends itself to the use of loop samples to estimate the average characteristics of loops such as lengths and plant mix in each access area. However, because of the new requirement that loop costs be estimated for much smaller areas, i.e., wire centers, a much larger sampling effort would be required. While sampling is still a valid approach to estimate average loop characteristics, the time and energy necessary to carry out a sampling approach that is statistically valid is not practicable in the present circumstances. Consequently, a more granular approach not based on new sampling is necessary for estimating loop costs.

In order to provide the greater granularity that is now needed, Ameritech Michigan used the day-to-day operating systems to obtain all the customer addresses for all of the loops for each distribution area of Ameritech Michigan. These customer addresses are then converted into a longitude and latitude. Thus, AFAM has been updated to use this location information to redesign the distribution plant in each distribution area. Distribution costs were then aggregated into Ameritech Michigan's wire centers and then accumulated by access areas A, B and C using the percent of the loops in the access area contained in that wire center. This weighted TSLRIC for each access area is compared to the corresponding loop cost approved in Case No. U-11280. For purposes of the cost study for supported services, closing factors were applied to the costs for each wire center that result in weighted costs equal to those in the TSLRIC studies filed on February 11, 1998 in Case No. U-11280.

With regard to the second modification, because the study results are to be used as the cost part of the federal universal fund mechanism that starts at the beginning of 1999, the most current prices paid for copper and fiber cable are used in the cost study. Ameritech Michigan believes that the application of the closing factors has the effect of bringing the current copper and fiber prices in line with those used in Case No. U-11280.

Regarding the third modification, Ameritech's Regulatory Policy organization, in conjunction with Arthur Andersen, analyzed Ameritech's forward looking costs that are shared among products and services or common to all products and services and then attributed such shared and common costs to retail and wholesale business units and ultimately to retail and wholesale products and services, based on measures of cost causation when available, or accepted allocation methods when measures of cost causation do not exist. The shared and common cost study analyzed the costs of the retail business units and the unbundling segment to categorize costs into four categories: (1) Product-Specific Costs; (2) Product-Family Shared Costs; (3) Shared Costs; and (4) Common Costs.

Product-specific or direct costs represent the forward-looking costs directly associated with the providing of a product, service or UNE. Product-family shared costs are those costs which are incurred to provide products or services within a single product family such as local usage or vertical services. Shared or joint costs are those which support two or more product families but not all the families. Finally, common costs are incurred to operate the business as a whole and are not directly associated with individual products or services or any groups thereof.

The retail business units which were examined for developing product-family shared costs and shared costs are Consumer, Small Business, Custom Business, and Enhanced Business as well as the product management organization that supports retail services. The joint (shared) and common cost study provides the cost pools used in developing shared and common cost factors. Product-families for residence local access, residence local usage, business local access, and business local usage for each of the retail business units are used to develop the product-family shared costs for supported services.

A product-family shared cost factor is calculated using these product-family shared costs and the loop, port and local usage costs for supported services. A retail-unit shared cost factor is calculated by using the regulated, tariffed services portion of retail shared costs for these units and the TSLRICs of these same services. The product-family shared cost factor and shared cost factor are added together to yield a total shared cost factor. Finally, a common cost factor is similarly calculated using common costs and its associated TSLRICs. The Michigan Commission, in Case No. U-11280, adopted the shared and common cost analysis for Unbundled Network Elements presented by MCI/AT&T's witness. His analysis modified the original Ameritech UNE shared and common cost analysis for numerous items. Ameritech Michigan's retail shared and common cost analysis for supported services, incorporates those modifications that also pertain to the retail environment.

On May 11, 1998, the Michigan Commission issued an order in Case No. U-11635 which directed Ameritech Michigan to make additional adjustments to its proposed retail shared and common costs. Regarding common costs, the Michigan Commission ordered that the common cost mark-up should be set at 7.58% or the same level as that approved for unbundled network elements in Case No. U-11280. The Michigan Commission also ordered a 20% reduction to the shared costs initially proposed by Ameritech Michigan to account for increased efficiencies of the Company's operations as required by the TSLRIC concepts of optimum and efficient operation.

Ameritech Michigan's cost study being submitted for supported services is in compliance with the U-11635 Commission order.

Regarding the fourth modification, the Universal Service Accumulator is a spreadsheet that collects and analyzes proprietary loop, port and local usage costs as well as develops the cost for toll blocking for qualifying low-income customers. This spreadsheet links the cost information developed by other cost tools. Finally, the USA spreadsheet summarizes loop, port, local usage, joint, and common costs by wire center. Because it's Ameritech Michigan's belief that only loop costs vary by wire center, the USA spreadsheet starts with loop investments for every Ameritech wire center in the state. Inputs for each Ameritech Michigan wire center are derived from AFAM. AFAM uses an inventory of loop characteristics to derive feeder, distribution, and drop investments based on forward-looking design criteria using existing wire centers and customer addresses. Because the specific location by longitude and latitude for some customer addresses is not currently determinable, some wire centers were not directly studied. For such wire centers, the investments were based on studied wire centers of similar size and density. Additional data is also used to account for the costs of loop items, such as hut and cabinet enclosures, poles, conduit, and plug-in units, that are not included in the investments identified by AFAM. Based on the same ECONS runs used to comply with the Commission's orders in Case No. U-11280, annual cost factors are applied to derive monthly costs.

Next the USA spreadsheet develops the monthly costs for ports and local usage costs consistent with the methodology and annual cost factors used to comply with the Commission's orders in Case No. U-11280. Joint cost and common cost factors are then applied to the sum of loop, port, and local usage costs for each wire center. The volume-sensitive costs for toll blocking are based on switching investments measured by SCIS. The fixed costs for toll blocking reflect the development of methods and procedures to provide this service along with training of appropriate work forces. Finally, the USA spreadsheet displays the total cost for supported services for each wire center as the sum of loop, port, local usage, joint, and common costs.

Because revenue-related expenses such as retail uncollectibles and Michigan's single business tax are not part of a TSLRIC, a universal service support benchmark based on gross revenues should be adjusted to reflect such expenses for supported services.

Criteria for Cost Studies for Supported Services

Paragraph 56 of the Universal Service Order and Section 54.101 of the FCC's Rules provides that the following services or functionality's are to be supported by the Federal universal service support mechanism:

- 1) Voice grade access to the public switched network;
- 2) Local usage;
- 3) Dual tone multi-frequency signaling or its functional equivalent;
- 4) Single-party service or its functional equivalent;
- 5) Access to emergency services;
- 6) Access to operator services;
- 7) Access to interexchange service;
- 8) Access to directory assistance; and
- 9) Toll limitation for qualifying low-income customers.

Ameritech Michigan's cost study determines the costs for these services and functionality's.

Voice grade access to the public switched network is accomplished through loop facilities and line-side terminating facilities in an end-office switch.

Ameritech's cost study uses the AFAM model to determine the forward-looking economic investments and design for the cable facilities in the loop that meet the technical requirements of voice grade access. Bellcore's SCIS, Ameritech Michigan's model for switching investments, is used to determine the forward-looking investments for the terminating equipment that meets the technical requirements of voice grade access in a retail customer's end-office switch. Further calculations are made using the ECONS model, which determines annual costs from investments.

In the case of each model (AFAM, SCIS, and ECONS) to be used in the cost study, the cost analyst inputs Company-specific cost data. Ameritech Michigan has regularly used each of these cost models in cost studies previously reviewed and approved by the Michigan Commission. Finally, a reasonable portion of shared and common costs will be included in the cost development, as discussed in greater detail in Part B of this narrative.

Local usage is accomplished by using originating end-office and tandem switches. In addition, some voice grade calls require the use of the signaling system network, terminating end-office switches and facilities that connect originating and terminating local switches. Ameritech Michigan's study uses Bellcore's Network Cost Analysis Tool ("NCAT") to determine the forward-looking economic cost for such usage on a per minute basis. NCAT uses SCIS to determine forward-looking end-office and tandem switching investments caused by local usage. NCAT also uses Bellcore's Common Channel Signaling Cost Information System ("CCSCIS") to determine forward-looking signaling system network investments caused by local usage. As in the case of determining voice grade access costs, company-specific data is inputted into each component of the cost study.

Dual tone multi-frequency signaling or its functional equivalent is accomplished by using Touch-Tone capabilities of the end-office switch together with the facilities necessary for voice grade access to the public switched network. Ameritech Michigan's study uses SCIS to develop forward-looking investments for terminating equipment in a retail customer's end-office switch that provides Touch-Tone.

Single-party service or its functional equivalent is accomplished by designing dedicated voice grade access lines. Ameritech Michigan's study includes forward-looking investments supporting this capability through the application of AFAM and SCIS.

The forward-looking design for voice grade access to the public switched network also provides access to emergency services, operator services, interexchange services, and directory assistance. Consequently, the forward-looking investments developed by AFAM and SCIS include the capability to determine the forward-looking economic investments and design for these services/functionality's. Finally, toll limitation for qualifying low-income consumers, as initially defined by the FCC, consists of toll blocking or toll control. Ameritech is only able to provision toll blocking.

Consequently, only the costs for toll blocking were determined based on forward looking investments obtained from SCIS. Further, our understanding is that the FCC modified the requirements on toll control in a recent order issued in CC Docket 96-45 so that toll control is not required to be offered under all circumstances. In keeping with the FCC requirements, Ameritech Michigan will largely express these costs on an aggregate basis. Because of the forward-looking design for single-party, Touch-Tone, voice grade access to the public switched network, no additional or separate modeling will be necessary to reflect access to emergency services, access to operator services, access to interexchange services, and access to directory assistance. Hence, the core of Ameritech Michigan's study will develop the forward-looking cost for exchange access that collectively incorporates all support services other than local usage and toll blocking. Costs will be individually identified for local usage and toll blocking.

Documentation

Descriptions of the cost models used in the universal service cost studies are located on Diskette #1. The Universal Service Accumulator spreadsheet is found on Diskette #2. All data contained on both Diskettes is considered CONFIDENTIAL.

7. Supporting Information

(b) Please identify the sources of all underlying data used in the study and state whether these sources are included with this filing. If not, explain why not.

Response:

The sources of the underlying data used in the study are identified in the cost model documentation provided on the Diskettes. The Loop Engineering Information System used by AFAM is not included since it is a stand alone large scale system. Also, the SCIS model office inputs/outputs as well as the documentation for the SCIS, NCAT, ECONS cost models and the Arthur Andersen shared and common cost analyses are not included due to the voluminous nature of the material. These data will be made available to any interested party subject to signed non-disclosure agreements.

B. DEMONSTRATION THAT THE COST STUDY FULFILLS THE ORDER'S CRITERIA FOR STATE COST STUDIES

Criterion 1: *The technology assumed in the cost study must be the least-cost, most-efficient, and reasonable technology for providing the supported services that is currently being deployed. A model, however, must include the incumbent LECs' wire centers as the center of the loop network and the outside plant should terminate at incumbent LECs' current wire centers. The loop design incorporated into a forward-looking economic cost study or model should not impede the provision of advanced services. For example, load coils should not be used because they impede the provision of advanced services. Wire center line counts should equal actual incumbent LEC wire center line counts, and the study's or model's average loop length should reflect the incumbent carrier's actual average loop length.*

- (a) Describe the network technology for which costs are computed, including switch types used, feeder and distribution technology, digital loop carrier devices, and other electronics, if any; type of interoffice technology; and any assumptions such as maximum copper loop lengths or copper resistance constraints.

Response:

Costs are based on the following technology assumptions:

Central Office Switching

100% Digital Switching. Reflects meld of Lucent technologies, Nortel and Siemens central office switches as used in Ameritech Michigan service territory.

Outside Plant – Feeder & Distribution

Mix of 26 gauge, non-loaded copper facilities and fiber optic facilities used in conjunction with Litespan 2000 digital loop carrier facilities. See response to (b)(1) regarding maximum copper loop lengths.

Inter-Office

100% fiber optic facilities. These costs are only included in the local usage component of the costs for supported services.